Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	**)**	
	)	
Improving Public Safety Communications	**)**	
in the 800 MHz Band	**)**	**WT Docket No. 02-55**
Consolidating the 900 MHz Industrial/Land	**)**	
Transportation and Business Pool Channels	**)**	

COMMENTS ON "CONSENSUS PLAN"
OF
MT COMMUNICATIONS, INC.

MT Communications hereby submits its Comments relative to "Consensus Plan" that is initiated as part of the FCC Notice of Proposed Rulemaking for solving the interference problems that public safety agencies are experiencing all over the country in using 800 MHz trunked digital and analog systems.

I. Introduction and Summary

MT Communications hereafter referred to as MTC is a small independent company that design, installs, and services Public Safety Radio Systems in the Washington, D. C. area. Its past or present customers include Baltimore City

Police,

Montgomery County Maryland, Prince William County Virginia Police, State of Maryland, Gaithersburg City Police, US Marshals and the Chevy Chase Maryland Police Department.

We filed Reply Comments on August 7, 2002 supporting the relocation plan similar to that proposed by the Consensus Group hereafter referred to as the Consensus. For greater detail on our proposal, we recommend that those comments be read in addition to this filing. While we are just outside the beltway, we believe we have somewhat of an unique view and recommendations that weren't provided by the various trade groups located in Washington. Since we best know the Baltimore/Washington area, we have used it to illustrate problems and our recommended solutions. We applaud what appears to be the urgent attention by the Commission on this NPRM. We would also urge that decisions be piloted in Washington, D. C. and New York since both areas are likely to be repeat targets of terrorist attacks.

According to a Motorola Homeland Security Briefing to the Commission and a ranking by the Commission of the top 50 urban areas, 9 out of the top 20 markets have either Channels 63/68 and/or 64/69 available. Washington, D. C. is one of those markets and should be opened immediately. The use of the 700 MHz band should be considered as part the Consensus Plan.

We are opposed to the part of the Consensus Plan where it appears to us that Nextel is purchasing spectrum for $500M. Motorola has most of the state and local 800 MHz public safety market in the U. S., all in the D. C. area and they are the sole source supplier to and a major stockholder of Nextel. They should be made to

pay

for this migration by furnishing new equipment and services. Motorola stands to financially benefit the most from funds spent to relocated public safety users. After reading and understanding the technical papers submitted in this NPRM, it clear that

the inference and problems being created particularly in the NPSPAC channels are not the fault of the Nextel or the A carriers but due to the physics of radio propagation which are now better understood.

Motorola has filed several papers with the Commission stating that they are unable to design and build a better portable receiver in the currents bands that will solve these interference problems. This is despite the fact that the Motorola Astro digital trunking radios sell for over $3,000 vs. only $1, 000 for a LTR 800 MHz trunking or a UHF radio. A Nextel Portable with more function than a public safety unit is sold by Motorola for $300. If there were a competitive market then other firms might develop a receiver with higher IM rejection and longer battery life. This

is the case in the UHF market where we are more active. We request that the Commission bring the Department of Justice and Federal Trade Commission in to look at Motorola's position in the State and Local Public Safety 800 MHz Trunked Market. Part of this review should be their role as the sole supplier to Nextel and a major stockholder of Nextel. Motorola and Nextel stand to financially benefit billions of dollars from this upheaval.

These problems are exacerbated by trunking channels and the digital

modulation. which Motorola covers in their submission[1] . We recommend that current 800 MHz users stop trunking and use their channels as conventional analog radios until the interference problems are solved.

We Petition the Commission to temporarily suspend the licenses and construction permits of licensees who are in the process of building out and testing new systems but who are not on line or who still have their older system in operation. It will be far easier and less expensive to make the move before going on line. This would also create NPSPAC "green space" which would make the "retuning" easier. In the Washington, D. C. area Montgomery County, Howard County, Prince William, Fauquier, and Somerset Counties are all candidates to have their licenses put on hold for the time needed by the Commission to take action.. As a minimum, they should be notified that if they proceed in deployment or upgrades they will not be eligible for Nextel, Federal Grants, or other funds to relocate. They are at their own risk! Fairfax County stated in their comments that a major relocation could cost them as much as $30M. which is approximately 50% of their initial cost. Baltimore City stated in their reply comments that it will cost them $70M to "retune" their systems, which if a good estimate, means that $500M is woefully inadequate. Motorola is Baltimore's consultant and sole source supplier so we assume that they furnished this cost estimate thus clearly demonstrating that $500M is not even close. In fact there are over 1,000 Public Safety Users in the 800 MHz

[1] Comments of Motorola – May 6, 2002 – Page 16

band with about 30 in the Baltimore/Washington Area. Nextel's offer would be less

than $500,000 per agency which is orders of magnitude too low.

In conclusion, the Commission must take a series of bold actions that are at

the clearly in the public interest to solve the 800 MHz Public Safety problems that

threaten lives every day.

II. A Review of the Filed Comments and Other Documentation Indicate that there are serious problems at 800 MHz – Now and in the Future

As stated in the above summary, MTC is going to focus it comments on the

region of the country that it has experience – the Baltimore/Washington Area.

Baltimore City, Baltimore County, Washington, D. C. Fire, and Fairfax County who

are major 800 MHz trunked radio users filed comments stating that they are

experiencing major problems such as dead spots and interference which busies out as

many as 3 of their channels. We believe that the Commission now accepts the fact

that relocation must be taken.

III. September 11 Communications Problems at the Pentagon and in New York City Add Urgency for Immediate Action by the Commission.

Recently the Washington Post and New York times published major articles on

the breakdown of communications that the Pentagon and the World Trade Center.

The Post Article referenced a report contracted for by Alexandria City and funded by

a Federal Grant. "In the first few hours, foot messengers and bullhorns proved to

be the most reliable form of communications". In the report[2] there is a quote "Where line of sight could be achieved, talk around was minimally effective." Arlington County was using a Motorola 800 MHz trunked radio system. The report does not go into enough depth to determine whether the breakdown was cause by interference, overload, etc. In "talk around" mode where two units can communicate

directly over a short line of sight distance, one can only conclude that some external factor such as interference caused the failure to communicate at the Pentagon.

A front page article in the New York Times[3] states that the Fire Department issued evacuation orders for the North Tower just after the collapse of the South Tower which gave firefighters 21 minutes of warning. "Yet most of the firefighter never heard those warnings". "Their radio system failed frequently that morning". "Cut off from critical information, at least 121 firefighters, most in striking distance of safety, died when the north tower fell". It is not clear where the Fire Department was using their new 2,700 Motorola Digital Astro Portables or had fallen back to their older system because of earlier failures of their Motorola 800 MHz trunked system. McKinsey Consulting has been hired by NYFD to study the problem.

We do not believe that the either the Pentagon or World Trade incidents represent a major stressing of Public Safety Communications. A far larger problem could arise following the explosion of a "dirty bomb" in the downtown area of Washington, D. C. where thousands of Police and Fire would be trying to communicate over many days. Public Safety does not need a "wild card" problem

[2] Arlington County Report written by Titan Systems Report at Page A-36
[3] See n. 2 supra

created by interference from CRMS systems which will also be at maximum usage.

IV. MTC recommends that any solution be piloted in several areas such and Washington and New York before a Nationwide rule change.

We believe that any solution that the Commission decides on to the 800 MHz interference problem should be piloted in the Washington and New York areas. Montgomery County, Maryland or Washington DCFD and the NYFD would be representative of areas to see if the interference problem can be completely solved. A Rule Making without testing might create worse problems so pilots should be used.

V. We agree with the Consensus Group that the best solution is to relocate existing NPSPAC users to spectrum at the 806 - 809 MHz band - or even 700 MHz.

We believe that the best location for Public Safety is the new 700 MHz band where there are thousands of new channels surronded by a guard band. Motorola in a Homeland Defense[4] presentation to the Commission shows a map that indicates that channels 63/68 or 64/69 are current available in 9 out of 20 of the top US markets including Washington, D. C. . For other markets and should Motorola's analysis of the UHF TV station clearing not be correct, we favor the Consensus proposal to move Public Safety away from cellular and Nextel and closest to the new 700 band. This should provide the maximum protection and allow public safety

radio to operate with the lowest noise floor and minimum interference.

VI. None of the Commenters state that Nextel is violating the Commission Rules and therefore should not be made to Fund the Relocation.

[4] Motorola Presentation to the Commission on May 15, 2002 by Mr. Gary W. Grube

While many of the comments focused on requesting the Commission to force Nextel to pay for relocation, none that we read proved that Nextel was in violation of Commission rules in causing the interference. We understand Nextel's play for more spectrum and desire to lower their costs in responding to interference problems. However, we don't believe that Nextel should be required to pay for relocating Public Safety Agencies. Instead they should pay for any spectrum above and beyond any they swap based on the value of recent auctions. Intermodulation is

a natural byproduct of communications.

VII. Motorola should be required to help fund these moves since they are basically the Sole Source Supplier to Nextel and State/Local Public Safety Agencies and Stand to Profit from such a move. In addition, we believe the Commission should request that the DOJ and FTC agencies review the Marketing Practices and Market Share of Motorola in the Public Safety Market.

In an article in Mobile Radio Technology titled "Battling Bat Wings"[5] Mr. Schwaninger reports that Motorola manufacturers all of the Nextel base station equipment and subscriber units. They are also a major stockholder in Nextel. He also correctly points out that they are the leading supplier of Public Safety Equipment and have known for years that IDEN technology causes harmful interference. In the Baltimore/Washington area all of the 800 MHz Public Safety trunking systems are Motorola. There was little or token competition for these large

contracts. Montgomery County is spending over $160M for a new public safety system that is under construction. He points out that they should pay for part or all of the cost of relocation since they created the problem. In the Motorola design

[5] Mobile Radio Technology - May 1, 2002 - by Robert H. Schwaninger, Jr. http://www.mrtmag.com

system they have failed to follow their own Best Practices Design Guide. They have located towers and sites in Germantown and North Rockville to serve the 2nd largest city in Maryland – Gaithersburg. Nextel has one of their largest sites on the Asbury Methodist home in the central Gaithersburg. This is a classical Near-Far

Scenario which Motorola recommends avoiding. If someone else pays for the cost to solve the problem then Motorola will profit from a mess they created. They should be held accountable.

In a memo from the County Attorney[6] of Fauquier County regarding the negotiations with Motorola for a new 800 MHz trunking systems he states that "Negotiations, however, have not been without issue and Motorola, **in its capacity as a near monopoly,** has often refused to negotiate on specific language." Also published on the county web site is the County's failed attempted to negotiate Motorola into a positions to hold Fauquier County harmless should there be the type of interference covered by Docket 02-55.

Were there competition in this market from other radio vendors, then we believe that there would be other equipment vendors who might have a different receiver that would work with the Motorola systems but have a higher or a non-linear intermodulation rating. However all of the Baltimore/Washington Trunked 800 MHz bids that we are familiar with have been bundled contracts. Motorola has successfully convinced the cities and counties who have bought system to buy the consoles, tower, base stations, microwave, portables and mobiles all in one long term

[6] Memo from Paul S. McCulla, Fauquier County Virginia – January 11, 2002 to Board of Supervisors

contract(3 to 5 years). This means that a competitor who could develop a better portable or mobile that might have interference protection will find no market for it since Motorola has a lock on the marketplace. We are focusing on the portables since this is the chief device that Motorola claims can't be improved because of battery life. Currently Motorola is delivering to the local public safety user the XTS 3000 which is a 5 to 7 year old technology. In the competitive cellular marketplace, Motorola announces new products every 6 months. The radios that Motorola is current delivering to the Baltimore/Washington area have a proprietary interface that they control through patents and royalties. The radio systems are not APCO Project 25 compliant. The only true reported APCO 25 system being installed is the Michigan State Police[7]. They are Motorola's Astro products, which uses their Smartnet II 3,600 baud control channel architecture. Smartnet trunking is a 15 year old technology built on an analog base. Tyco/Amp is installing for the Pennsylvania State Police an 800 MHz modern all digital technology that uses Voice over Internet Protocol.

One major component of an economic monopoly is lack of technical innovation and open standards which is clearly present here. A second indicator is higher prices. In the early 1990's we competitively won the Prince William County, Virginia Police UHF Portable Radio Contract against Motorola. Their initial bid

[7] Trunkedradio.net Web Site

was over $2,000 per portable versus our $1,000 bid using a Bendix King radio. This contract has been rebid four times in three year options and we have won each time. In fact, they have not bid directly in the last nine years since they know that they are not competitive. Aside from price, Prince William tested and found that the Bendix King battery lasted 50% longer than Motorola's permitting a 12 hour Police shift! This shows that when there is competition there is technical innovation at lower prices. Motorola has recently sold the XTS 3000 to all of the local public safety agencies for a discounted price of approximately $3,000! This is three times the price of our 800 MHz trunked portable and our UHF radio sold to Prince William, Baltimore City, etc. While the Motorola digital Astro radio has some additional circuitry, it does not have 3 times the factory cost. One can purchase, without a tie in to a Nextel subscription, a Motorola IDEN handheld for $300 with far more function such as paging, browser, and a 3 day battery life. In fact the IDEN product is full duplex which could be done on the current 800 MHz channel which would allow policemen and firemen to tell if their voice message is being hear because they would hear themselves. All other communications including landline and cellular is full duplex. One can only conclude that Motorola is making a huge profit and has a monopoly in the 800 MHz Public Safety State and Local market!

We believe the Commission such refer all of the comments in this proceeding to the Department of Justice and Federal Trade Commission to see if they believe Motorola has done anything illegal or unfair. If there is a finding against Motorola, then they

could be force to pay for relocation expenses.

IX. We recommend that the Commission Instruct Public Safety Agencies to Cease Trunking and Use Analog Modulation to Temporally Reduce Problems.

In Motorola's comments[8], they correctly point out trunking requires at least two interference free channels. One is for the control channel to decode or originate a call and a second random voice channel to carry the conversation. If there is a pause in the reply conversation to the next message could be assign to a third channel. One way to temporarily minimize interference is to assign fixed frequencies for police users since all police department have fixed districts. By eliminating the need for multiple interference free channels, a single channel for each Police district can be found. This can be done by using a spectrum analyzer, intermodulation calculations, and experience via usage. This would eliminate the randomness of the interference problem. This will not be difficult for Motorola to implement since this is the fail-safe mode that is part of their trunking systems. In Baltimore City, the police who have 80% of the radios have only eleven talkgroups[9] out of a thirty-five channel system. Nine talkgroups or channels are for nine districts and there are two citywide channels. The rest are for the fire department, mutual aid, the mayor, etc. which only have a few hundred radios. Montgomery County is installing a 20 channel systems but cannot staff more than five police and one fire dispatch. Local TV channels reported last week that they are twenty people short out of

[8] Docket 02-55 May 6, 2002 - Page 16
[9] Web Site Trunkedradio.net

one hundred slots. In summary, Montgomery and Baltimore are typical of other public safety agencies that have plenty of fireground and tactical channels to use given a simple manual process that has worked for 50 years.

Because the digital radio systems are basically analog with a digital vocoder, we recommend that the digital systems be programmed into the analog mode. As Motorola states in same section "interference to analog conventional radios usually results in audible static noises". We agree and recently solved a very troubling intermodulation problem by identifying the voice of the offending party. This can't be done with a digital system. In fact the Boston Fire Department has a 150 page report that express a "clear and unambiguous preference for the analog radios. This is an easy task since all Motorola radios can be easily reprogrammed into the analog

mode and the trunked system can have mixed digital and analog at the same time.

IIX. We Petition the Commission to Temporally Suspend the Construction and Licenses of Public Safety Agencies in 800 MHz that have not Fully Cut Over until the Commission publishes their Rules on this NPRM. MTC and others does not believe that $500M will even approximate converting an estimated 1000 Public Safety 800 MHz Systems.

Given the overwhelming reports of problems, it seems "like pouring more gasoline on the fire" to continue to permit more public safety agencies to build out their systems to create more interference, cost and schedule problems. Fairfax County had a relocation cost estimate of up to $30M. Baltimore City has estimated that they will have to duplicate their $70M system to move. In the Washington Area counties such as Montgomery, Howard, Prince William , Fauquier and Somerset are all area candidates to have their licenses and

construction authorization put on hold. Alexandria, Baltimore County, Anne Arundel, Washington D. C. Fire and Frederick, Md. are all in upgrade modes and should be advised to pause until some decision or direction is decided on this NPRM. We have contracts with some of these agencies and have seen some of the Motorola contracts. They all contain a clause to either cancel or put on hold any radio project because of a FCC rule change or problem. These effected agencies should not lose money or have any contract issues because of a hold.

In the event, the Commission chooses not to place licenses on hold, then they should not permit agencies that are not currently on line to obtain Nextel monies or any Federal Grant should this the one of the outcomes.

Most counties do not have an engineer or a person who closely follow the Commissions rules. This is usually done by a consultant or Motorola. To gain the attention of public safety agencies, we believe the Commission should send letters to

the Mayors, Governors, or County Executives advising them of this NPRM and possible relocation.

X. Conclusion

We agree with the Consensus Group that the NPSPAC users must be moved to the lower 800 MHz band. In the areas that have 700 MHz available, then the users should be moved there because it not necessary to create "green space" by using the 5 step process outlined in a Consensus Presentation given on August 16, 2002. Given the large number of 800 MHz problems documented in this NPRM and in the press, the events of September 11 and the Commission's role of protecting the public interest, we believe this NPRM should be fast tracked as it

appears to be . We believe that a series of actions should be taken by the Commission and not one single set of rules that might take six months or a year to complete. They include:

1. Notification of the top executive of each government agency that holds a construction or operational license that there will likely be major rule changes including relocation.
2. Suspensions for 90 days of any construction or license where there has not been a full change over.
3. Create a list of technical recommendations for current users such as ceasing trunking and revert to analog from digital to mitigate interference until migration.
4. Pilot solutions or rule changes in the Washington and New York areas.
5. Move users to 700 MHz in the many areas where there are no active television stations.
6. For all others move them to the lower 800 MHz band.
7. With the help of DOJ and FTC, create more competition and innovation in the equipment area for 800 MHz which includes requiring the use of an open standard.
8. MTC believes that Nextel should pay for the additional spectrum that they receive over and beyond that which they swap under the Consensus Plan. We believe that Motorola should pay for the Public Safety Relocation since they caused this upheaval and stand to profit from the solution.

Due to the urgency of this issue we would happy to meet with the Wireless Bureau to further explain our proposals.

Respectfully submitted,

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